

## **Strategies for Near Real Time Estimates of Precipitable Water Vapor From GPS Ground Receivers**

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Recent studies have indicated that GPS-based estimates of precipitable water vapor (PWV) may be useful in numerical weather models to improve short-term weather predictions. To be effective in numerical weather prediction models, GPS PWV estimates must be produced with sufficient accuracy in near real time.

We investigate several estimation strategies for the near real time processing of GPS data. The strategies pivot on the availability of accurate GPS orbits, predicted a day in advance. This eliminates the need to simultaneously collect and process data from a global network of sites in near real time. Instead, GPS and surface meteorology data from only one or two sites of interest, anywhere on the globe, can be converted into accurate estimates of PWV as soon as the data is received at the processing center. These PWV estimates can then be incorporated into numerical weather prediction models with minimal latency. Techniques to enhance the quality of the predicted orbits are also discussed.

The quality of the near real time GPS PWV estimates is verified by comparing them with estimates derived from collocated radiosondes and water vapor radiometers (WVR).

### **1.1995 Fall Meeting**

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4. G (joint with A)

5. (a) G04 Ground-based GPS  
Measurement and Analysis of  
Atmospheric Water Vapor  
(b) 0365 Troposphere  
0394 instruments and techniques  
1294 instruments and techniques

6. Oral

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10. Please schedule after Kroger's  
paper, to be given in the same special  
session.

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